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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/658,128	09/09/2003	Daniel J. Vavrick	84208	5431

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NAVAL SURFACE WARFARE CENTER DAHLGREN DIVISION  
OFFICE OF COUNSEL, CODE XDC1  
17632 DAHLGREN ROAD  
SUITE 121  
DAHLGREN, VA 22448-5110

EXAMINER
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GELLNER, JEFFREY L

ART UNIT	PAPER NUMBER
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3643

MAIL DATE	DELIVERY MODE
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10/03/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/658,128

Applicant(s)

VAVRICK, DANIEL J.

Examiner

Jeffrey L. Gellner

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 27 July 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-7, 9, 11, 12 and 29-32 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7, 9, 11, 12, 29-32 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-7, 9, 11, 12, and 29-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hightower Jr. et al. (US 4,764,319) in view of Halcomb et al. (US 4,963,203).

As to claims 1-7, Hightower Jr. et al. disclose a reactive material (from abstract) comprising a metal foam, aluminum, (from col. 2 lines 54-58) having voids (from "reticulated" of col. 2 lines 54-58 and col. 3 lines 21-26); a polymer ("Binder" of example of col. 6 lines 5-14 imbibed in the void area (from col. 6 language in claim 1 of "including voids in the reticulated structure with the propellant material"). Not disclosed is the polymer being halogenated and the metal foam being reactive with the polymer. Halcomb et al., however, discloses the use of Teflon with aluminum (from col. 2 lines 30-37). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the composite of Hightower Jr. et al. by using Teflon as the binder as disclosed by Halcomb et al. so as to increase gas production (see Halcomb et al. at col. 1 lines 33-38).

As to claim 12, the limitations of claim 1 are disclosed as described above. Not disclosed is the composite used as an ordnance. It would have been obvious to one of ordinary skill in the art at the time of the invention to further modify the composite of Hightower Jr. et al. as

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modified by Halcomb et al. by using as an ordnance because the composite produces gas and pressure.

As to claim 31, Hightower Jr. et al. as modified by Halcomb et al. further disclose a particulate material of finely divided metal particles ("aluminum powder" of col. 6 lines 5-12 of Hightower Jr. et al.) and finely divided metal oxide particles ("iron oxide" of col. 6 lines 5-12 of Hightower Jr. et al.) that are disposed within the polymer (in that the polymer and particles are mixed together with the reticulated Al which is considered "disposed within").

As to claim 9, Hightower Jr. et al. as modified by Halcomb et al. further disclose a particulate material comprising aluminum ("aluminum powder" of col. 6 lines 5-12.

As to claim 11, Hightower Jr. et al. as modified by Halcomb et al. further disclose a particulate material producing thermite ("aluminum powder" of col. 6 lines 5-12 and "iron oxide" of col. 6 lines 5-12 of Hightower Jr. et al.).

As to claim 29, Hightower Jr. et al. as modified by Halcomb et al. further disclose a particulate material producing thermite ("aluminum powder" of col. 6 lines 5-12 and "iron oxide" of col. 6 lines 5-12 of Hightower Jr. et al.).

As to claim 30, Hightower Jr. et al. as modified by Halcomb et al. further disclose the metal foam consisting of aluminum ("aluminum" of col. 6 lines 5-12). It would have been obvious to one of ordinary skill in the art at the time of the invention to further modify the material of Hightower Jr. et al. as modified by Halcomb et al by having the polymer consisting of polytetrafluoroethylene and the particulate material consisting of aluminum and iron oxide depending upon use of the propellant.

As to claim 32, the limitations of claim 1 are disclosed as described above. Not disclosed is the metal foam being 15 to 35% and the polymer being 65 to 85%. It would have been obvious to one of ordinary skill in the art at the time of the invention to further modify the material of Hightower Jr. et al. as modified by Halcomb et al by having the metal foam being 15 to 35% and the polymer being 65 to 85% depending upon use of the propellant.

### ***Response to Arguments***

Applicant's arguments filed 27 July 2007 have been fully considered but they are not persuasive. Applicant's argument are: (1) Hightower Jr. et al. does not disclose the invention because it refers to combustion rather than reactive materials, especially because Hightower Jr. et al. discloses non-combustible material such as titanium (Remarks middle of 2<sup>nd</sup> page); and, (2) Halcomb et al. does not teach use of teflon with a reactive material because it would have adverse properties on the composition (Remarks bottom of 2<sup>nd</sup> page to top of 3<sup>rd</sup> page).

As to argument (1), in the context of this invention Examiner considers combustibility and reactivity to be same in operation of the invention. Hence, Hightower Jr. et al. discloses reactive materials. Titanium is discussed in terms of "high melting point" (col. 2 line 67) and not non-combustibility.

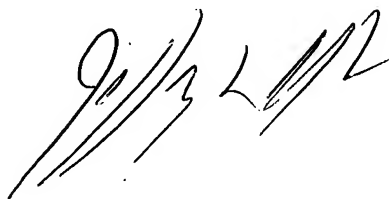
As to argument (2), Halcomb et al. discloses the use of teflon with thermite when gas is desired but that teflon does affect the stability of the composition at col. 1 lines 33-41. The possible instability of the composition does not negate the disclosure of teflon with thermite.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey L. Gellner whose telephone number is 571.272.6887. The examiner can normally be reached on Monday-Friday, 8:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Poon can be reached on 571.272.6891. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Jeffrey L. Gellner  
Primary Examiner  
Art Unit 3643